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(54) **NANOPATTERNED ARTICLES PRODUCED USING RECONSTRUCTED BLOCK COPOLYMER FILMS**

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CPC B32B 3/10; B81C 1/00031; B81C 2201/0149; B82Y 30/00; Y10T 428/12049; Y10T 428/24355
See application file for complete search history.

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(57) **ABSTRACT**

Nanopatterned surfaces are prepared by a method that includes forming a block copolymer film on a substrate, annealing and surface reconstructing the block copolymer film to create an array of cylindrical voids, depositing a metal on the surface-reconstructed block copolymer film, and heating the metal-coated block copolymer film to redistribute at least some of the metal into the cylindrical voids. When very thin metal layers and low heating temperatures are used, metal nanodots can be formed. When thicker metal layers and higher heating temperatures are used, the resulting metal structure includes nanoring-shaped voids. The nanopatterned surfaces can be transferred to the underlying substrates via etching, or used to prepare nanodot- or nanoring-decorated substrate surfaces.

2 Claims, 6 Drawing Sheets